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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/750,557	12/31/2003	Allen W. Bettner	42P17641	5707

8791      7590      11/16/2006

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EXAMINER

A, MINH D

ART UNIT      PAPER NUMBER

2821

DATE MAILED: 11/16/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/750,557	<b>Applicant(s)</b> BETTNER ET AL.	
	<b>Examiner</b> Minh D. A	<b>Art Unit</b> 2821	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 8/31/06.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7,9,21-27 and 31 is/are rejected.
- 7) ☒ Claim(s) 8,10-20,28-30,32 and 33 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-7, 9, 21-23, 24-27 and 31 are rejected under 35 U.S.C. 102(e) as being unpatentable by Ghosh et al (US 2004/0160370).

Regarding claim 1, Ghost discloses, in figures 4-7, slot antenna comprising a skin of a computing device(100), the skin(100) comprising a conductive material', and a slot in the skin, said slot comprising a slot antenna. Col.4, lines [0042] to col.5, lines[0054] to lines [0063].

Regarding claim 2, Ghost discloses the conductive material (AMC) comprises an outer layer of the skin in at least of vicinity of the slot. See figures 4 and 7.

Regarding claims 3-4, Ghost discloses the outer layer comprises one of a conductive coating and a conductive metal. See figures 2-5, col.2, lines [0031] to col.3, lines [0034] to [0036].

Regarding claim 5, Ghost Honda discloses the slot extends through both the skin and the conductive layer. See figures 2-5.

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Regarding claim 6, Ghost discloses the skin is made entirely of the conductive material. See figures 1-5.

Regarding claim 7, Ghost discloses the computing device comprises one of a laptop computer. See figure 4.].

Regarding claim 9, Ghost discloses a cavity behind the slot, said cavity having a depth of approximately one quarter of a wavelength of a resonant frequency of the slot antenna. See figures 4 and 7.

Regarding claim 21, Ghost discloses a tuning element coupled to the slot, said tuning element to tune a secondary frequency for the slot antenna. See figures 4 and 7.

Regarding claims 22-23, Ghost discloses wherein the tuning element comprises a stub capacitor and the slot antenna comprises a first slot antenna, the apparatus further comprising: a second slot antenna in the skin, said first slot antenna and said second slot antenna comprising a diversity antenna. See figures 4 and 7.

Regarding claims 24-27, Ghost discloses a laptop computer, said skin (100) comprising a conductive material(AMC)I', and a slot in the skin, said slot comprising a slot antenna. See figures 4 and 7.

Regarding claim 31, Ghost discloses, in figures 4 and 7, the slot antenna comprises a first slot antenna, the apparatus further comprising: a second slot antenna in the skin, said first slot antenna and said second slot antenna comprising a diversity antenna. Col.4, lines [0042] to col.5, lines[0054] to lines [0063].

***Allowable Subject Matter***

3. Claims 8, 10-20, 28-30 and 32-33 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The prior art does not disclose at least one of a base and a lid, and wherein the slot is located in at least one of an edge of the base, an edge of the lid, an outside of the lid, an inside of the lid, through the lid, and through the base recited in dependent claim 8.

The prior art does not teach that, an impedance plane coupled to the skin under the slot and the slot antenna has a primary resonant frequency and a secondary resonant frequency and at least one of a thickness of the skin in a vicinity of the slot, a width of the slot, a length of the slot, and a tuning element at a feed point of the slot are tuned to achieve at least one of a target impedance and a primary resonant frequency of the slot recited in dependent claims 10-20,

The prior art does not teach that, the slot antenna comprises a sector slot antenna having a directional radiation pattern recited in dependent claims 28-30.

The prior art does not teach that, a skin of a computing device, said skin comprising a conductive material, a first slot in the skin, said first slot comprising a first sector slot antenna having a radiation pattern in a first direction, a second slot in the skin, said second slot comprising a second sector slot antenna having a radiation pattern in a second direction, a third slot in the skin, said third slot comprising a third sector slot antenna having a radiation pattern in a third direction, and a fourth slot in the skin, said fourth slot comprising a fourth sector

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slot antenna having a radiation pattern in a fourth direction recited in independent claim 32.

***Citation of relevant prior art***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Ikegaya et al(US 6,847,329) and Casarez et al. (US 5,913,174) are cited to show a slot antenna.

***Inquiry***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Minh Dieu A whose telephone number is (571) 272-1817. The examiner can normally be reached on M-F (5:30 AM-2:45 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Callahan can be reached on (571) 272-1740. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR

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system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Examiner

Minh A

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11/13/06

*Shih-Chao Chen*  
SHIH-CHAO CHEN  
PRIMARY EXAMINER